(No Model.) 2 Sheets—Sheet 1.

W. H. BATE.

TUMBLER WASHER.

No. 256,193. Patented Apr. 11, 1882.

Fig 1

Fig 6

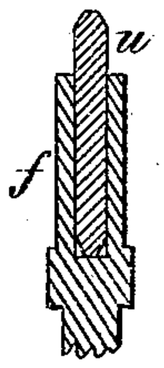


Fig 5

WITNESSES

W. J. Cambridge

Augustine Crosby

INVENTOR

Wallace H. Bate

per R. E. Teschemacher

Atty

(No Model.) 2 Sheets—Sheet 2.

W. H. BATE.

TUMBLER WASHER.

No. 256,193. Patented Apr. 11, 1882.

Fig 4

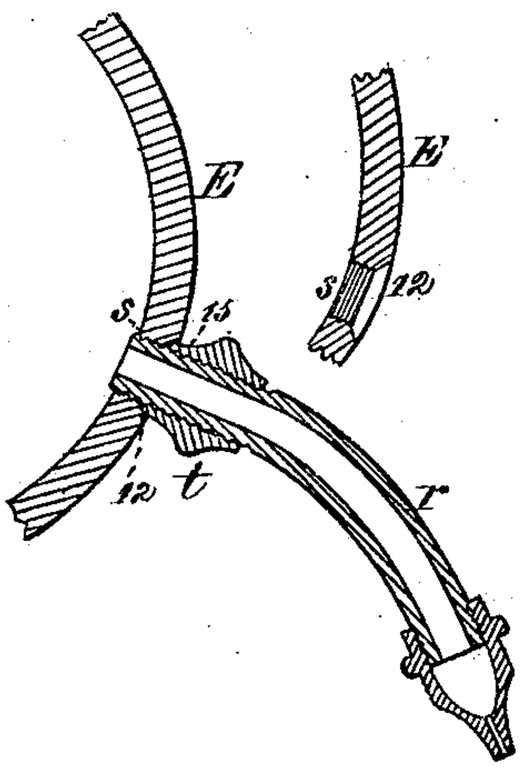


Fig 2

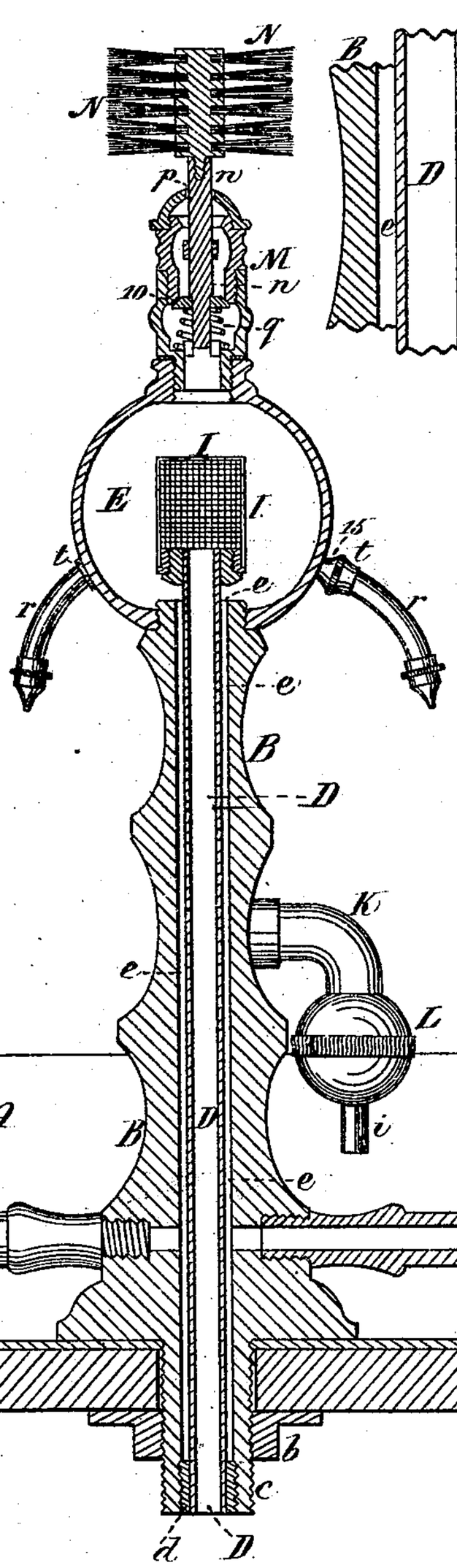
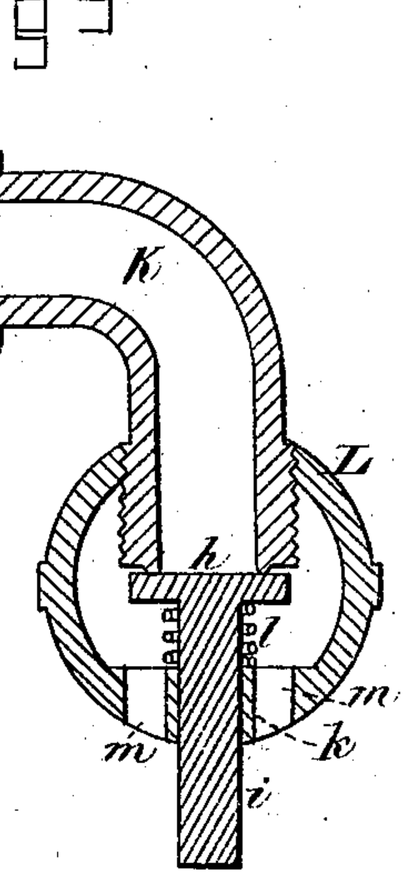


Fig 3



WITNESSES

W. J. Cambridge

Augustine Crosby

INVENTOR

Wallace H. Bate

per F. E. Teschemacher

Atty

UNITED STATES PATENT OFFICE.

WALLACE H. BATE, OF BOSTON, ASSIGNOR TO JAMES W. TUFTS, OF MEDFORD, MASSACHUSETTS.

TUMBLER-WASHER.

SPECIFICATION forming part of Letters Patent No. 256,193, dated April 11, 1882.

Application filed January 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALLACE H. BATE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Tumbler-Washers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of a tumbler-washer constructed in accordance with my invention. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a vertical section through the relief-valve and parts immediately connected therewith. Fig. 4 is a vertical section through one of the jet-pipes and a portion of the water-chamber. Fig. 5 is a perspective view of the filter or strainer detached. Fig. 6 is a vertical section through one of the valve-spindles and its removable tumbler-supporting pin.

My invention relates to certain improvements in tumbler-washers; and it consists, first, in a supply-pipe extending up within the main standard and terminating in a filter placed within a large chamber at the top of the standard, the water, after passing through the filter, descending from the chamber through a space formed between the interior of the standard and the exterior of the supply-pipe to the branch pipes, which are provided at their outer ends with the tumbler washing and supporting devices, by which construction I am enabled to employ a much larger filter than heretofore, which is not liable to become obstructed, and dispense with the usual filter or strainer in the coupling at the base of the standard, which is necessarily of small size, and consequently liable to soon wear out and become clogged, this filter, when situated at the base of the standard, being difficult of access and inconvenient and troublesome to remove for cleansing, while the water in the entire apparatus escapes when the pipe is uncoupled and has to be taken care of.

My invention also consists in regulating the pressure of the water in such manner that when one or more tumblers are removed from their supports, and the valves of their washing devices consequently closed, the increased pressure of the water thus created will be relieved, which is effected by the opening of an automatic relief-valve, whereby the pressure of the water upon the under surfaces of the valves of the washing devices of the remaining tumblers in place is reduced, which prevents these valves from closing, as would otherwise occur.

My invention also consists in the combination, in a tumbler-washer having a series of branch pipes provided with tumbler washing and supporting devices, of a shell or casing provided with a valve, spring, and spindle, and discharge-aperture for the water, and a brush applied to the valve-spindle and adapted to fit the interior of the tumbler, whereby the valve is depressed to permit the flow of the water by the act of placing the tumbler over the brush.

My invention also consists in the combination, with a jet-pipe, of a screw collar or nut having a conical end adapted to be screwed into a correspondingly-shaped recess or countersink in the water chamber or receptacle to which the pipe is secured, whereby a tight joint is insured without packing, this device also enabling the pipe to be turned in any position and instantly clamped with a tight joint.

My invention also consists in the combination, with the valve-spindle of the tumbler-washing device, of a removable sliding supporting-pin for the tumbler, which can be taken out and replaced by a new one at a trifling expense, or reversed if its point becomes worn, or replaced by one of a different length in case it should be desired to support the tumbler in a higher or lower position on account of its size.

In the said drawings, A represents the circular basin forming the lower portion of the apparatus, from the center of which rises the main standard B, secured in place by the clamping-nut *b*, the pipe (not shown) through which water is furnished to the apparatus being coupled in the usual manner to the lower end *c*, of the central standard, B. The lower end of the standard B, which is hollow throughout its entire length, is closed by a plug, *d*, in which is tightly fitted the lower end of the water-supply pipe D, which passes up through the standard into a spherical chamber or re-

ceptacle, E, screwed to its upper end, the diameter of the pipe D being less than that of the interior of the standard, thus forming between them an annular water-space, *e*, with which communicate the radial branch pipes G, which carry at their outer ends the tumbler washing and supporting devices H.

The upper end of the supply-pipe D terminates in a removable cylindrical filter or strainer, I, formed of wire-gauze or other suitable material best adapted to prevent the passage of impurities contained in the water, which would clog or obstruct the apparatus, the water, after passing up through the pipe D and filter I into the chamber E, descending through the space *e* directly into the branch pipes G, and thence to the points from which it is discharged against the tumblers, which are supported upon the upper ends of the valve-spindles *f*, each of the latter being depressed to open its valve *g* and allow of the passage of the water by the weight of the tumbler thereon in a well-known manner, the valve being automatically closed by the pressure of the water on its under surface, assisted by a light spring, when the tumbler is removed from its support and the spindle thus relieved of its weight.

The above-described construction and arrangement of parts enable me to employ a much larger filter than is possible where it is located at the base of the standard, as heretofore, while it will, on account of its size, remain unobstructed for a much longer time. Furthermore, its position is such as to render it easily accessible for cleansing, and when the chamber or receptacle E is removed the small quantity of water which it contains will escape directly into the basin A, no uncoupling of the apparatus beneath the counter, as heretofore, being required, and as the apparatus has to be taken apart for cleansing much less frequently the wear on the parts is materially diminished.

To one side of the standard B, near the center, is secured a short downwardly-curved pipe, K, which communicates with the water-space *e*, and has screwed to its outer end a spherical case or chamber, L, within which is placed a relief-valve, *h*, Fig. 3, the stem *i* of which is supported in a guide, *k*, and is surrounded by a spiral spring, *l*, by which the valve is kept against the end of the pipe K, which forms a seat therefor, the upward pressure of the spring upon the valve being regulated by screwing the case L up or down upon the end of the pipe K, and in this manner the valve is adjusted to resist the pressure of the water when all of the tumbers are in place upon their respective supports, and prevent the escape of water from the pipe K. When, however, one or more tumblers are removed from their supports, and the valves *g* of their washing devices consequently closed, the increased pressure of the water in the supply-pipe D and space *e* thus created will cause the relief-valve *h* to be depressed against the resistance of the spring *l*, when the water will escape into the chamber L, and out through the openings *m* in the bottom thereof into the basin A, thus instantly relieving the pressure of the water upon the under surfaces of the valves *g* of the washing devices of the remaining tumblers in place upon their supports, which are thus prevented from closing, as would occur from the increased pressure of the water on their under surfaces if no relief-valve were employed—a desideratum heretofore unattained in tumbler-washers as hitherto constructed.

To the top of the water-chamber E is screwed a short tube provided with a shell or casing, M, within which is placed a valve, 10, the spindle or stem *n* of which passes up through an aperture, *p*, through which a stream of water will flow when the valve is depressed against the resistance of a spring, *q*, by pressure applied to the stem or spindle *n*. This stem is furnished at its upper end with a brush, N, of suitable form and size to fit snugly within and cleanse the interior of a tumbler when the latter is held in the hand and moved up and down over it, the operation being rendered more complete by the jet or stream of water which is discharged onto the brush and interior of the tumbler from the aperture *p* when the valve 10 is depressed by the act of placing the tumbler over the brush.

The brush N is intended to be used as an auxiliary device to facilitate the removal of cream or other adhering substances which are not readily removed by water alone; and this brush may be used in connection with a stream or streams of water allowed to flow onto it, as above described; or the brush may be attached to any convenient and accessible portion of the apparatus and used alone, without a stream or streams of water, in which case it is merely necessary to mount the brush upon any suitable spindle or support which will admit of the tumbler being passed back and forth over it.

Around the water-chamber E, and communicating therewith, are arranged a series of short curved jet-pipes, *r*, from the nozzles of which streams of water are discharged upon the outer surfaces of the tumblers supported upon the valve-spindles *f* of the branch pipes G. Each of these pipes *r* is screwed into a threaded aperture, *s*, in the chamber or receptacle E, and upon the threaded end of each pipe *r* is placed a screw collar or nut, *t*, having a tapering or conical end, 15, which fits tightly into a correspondingly-shaped recess, 12, formed by countersinking the aperture *s*, into which the pipe is screwed, by which means a perfectly water-tight joint is insured without the employment of packing, while if it should be desired to change the angle of the pipe *r* it can be readily turned into the desired position when the nut is loosened, and instantly clamped with a tight joint by again turning the nut into its recess 12—an advantage which could not

be secured if the end of the pipe were merely screwed into the water-receptacle.

Each of the valve-spindles *f* of the tumbler-washing devices is made hollow at its upper end for the reception of a removable sliding pin, *u*, the extremity of which is conical and forms a rest or support for the tumbler to revolve upon, the advantage of this construction being that if the conical point of the pin becomes worn it can be taken out and replaced by a new one at a very trifling expense, or simply reversed, both ends being made conical; and if it should be desired to support the tumbler in a higher or lower position on account of its size a pin of the desired length can be readily introduced into the hollow end of the valve-spindle; or the pin can be raised by dropping a small piece of metal or other substance—such as a shot—into the hollow spindle and then placing the pin over it.

A tumbler-washer constructed as above described possesses the advantages of simplicity of construction, great durability, and freedom from liability to get out of order or become obstructed by impurities in the water, while the pressure of the water is rendered so uniform that the apparatus will operate satisfactorily under all conditions, which is an important consideration.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a tumbler-washer, the hollow standard B, provided at its upper end with a water chamber or receptacle, E, and the supply-pipe D, extending up through the standard, with a water-space, *e*, between them, communicating with the branch pipes G of the tumbler-washing devices, in combination with the strainer or filter I, secured to the upper end of the supply-pipe D and located within the chamber E, all constructed to operate substantially in the manner and for the purpose set forth.

2. In a tumbler-washer, the combination, with the standard B and chamber E, adapted to contain the water flowing from the supply-pipe, of a strainer or filter, I, secured to the supply-pipe and located within the chamber E, operating substantially in the manner and for the purpose set forth.

3. The combination, with a tumbler-washer provided with a series of tumbler washing and supporting devices, of a relief-valve adapted to prevent an increased pressure of the water upon the valves of the tumbler-washing devices when one or more tumblers are removed from their supports and the valves of their washing devices automatically closed, substantially as and for the purpose described.

4. In a tumbler-washer, the combination, with the pipe K, communicating with the water-supply, of the case or chamber L and the relief-valve *h*, contained therein, held against its seat by a spring, *l*, the pressure of which is regulated or adjusted by screwing the case L in or out upon the end of the pipe K, substantially as and for the purpose set forth.

5. In a tumbler-washer having a series of branch pipes, G, provided with tumbler washing and supporting devices, the combination, with the shell or casing M, with its valve 10, spring *q*, spindle *n*, and discharge-aperture for the water, of the brush N, applied to the valve-spindle *n* and adapted to fit the interior of the tumbler, whereby the valve is depressed to permit the flow of the water by the act of placing the tumbler over the brush, substantially as set forth.

6. In a tumbler-washer, the combination, with the pipe *r*, screwed into the aperture *s*, of the screw collar or nut *t*, provided with a conical end, 15, adapted to fit tightly into a correspondingly-shaped recess or countersink, 12, formed around the edge of the aperture *s*, whereby the pipe can be readily clamped at any desired angle with a water-tight joint, substantially as described.

7. In a tumbler-washer, the combination, with the valve-spindle *f* of the washing device, made hollow at its upper end, of a removable sliding supporting-pin, *u*, for the tumbler to rest upon, adapted to fit within the hollow end of the valve-spindle, substantially in the manner and for the purpose set forth.

Witness my hand this 22d day of December, A. D. 1881.

WALLACE H. BATE.

In presence of—
P. E. TESCHEMACHER,
W. J. CAMBRIDGE.