

(No Model.)

O. H. JEWELL.
BOILER FLUE CLEANER.

No. 258,426.

Patented May 23, 1882.

Fig. 1.

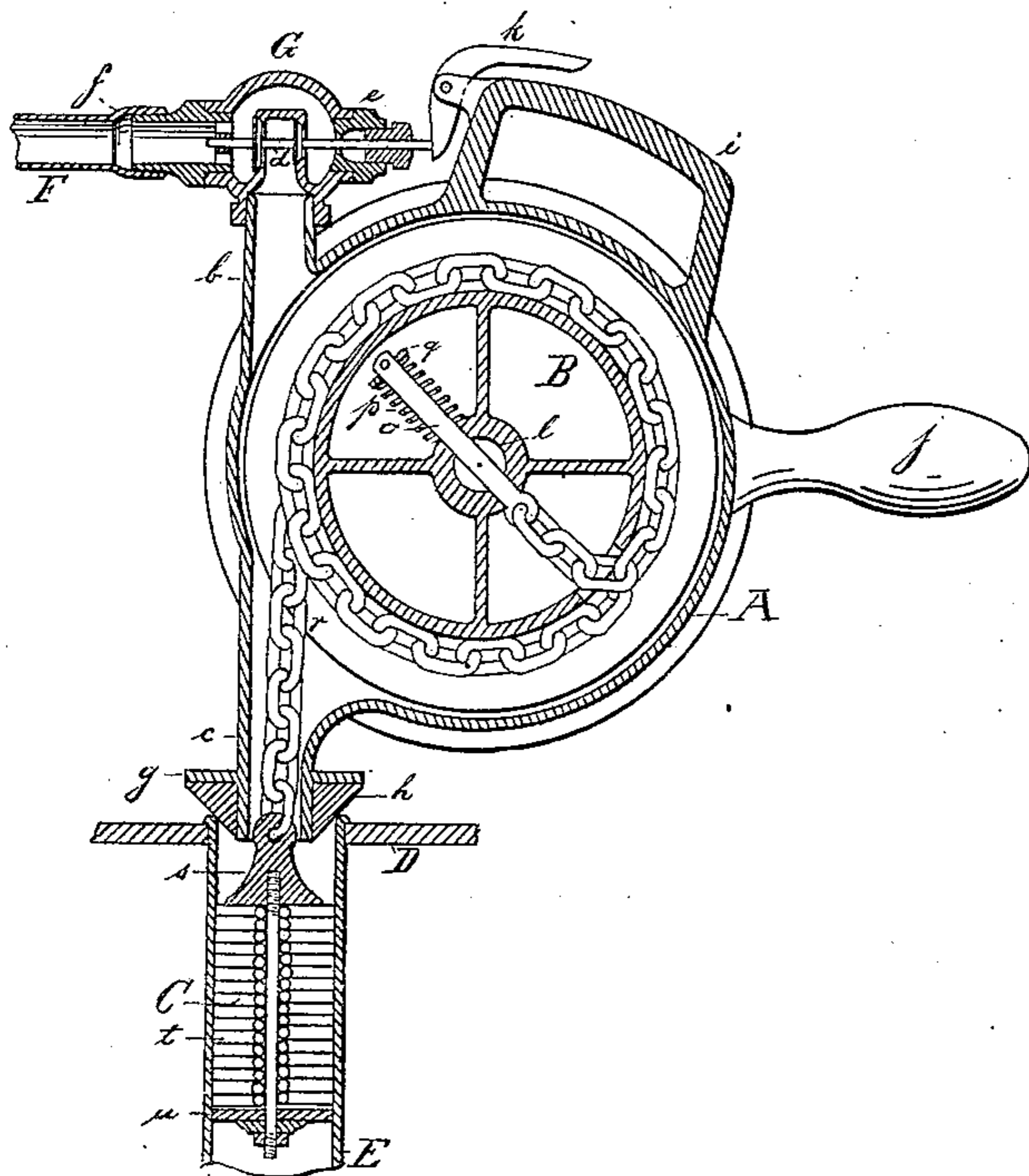
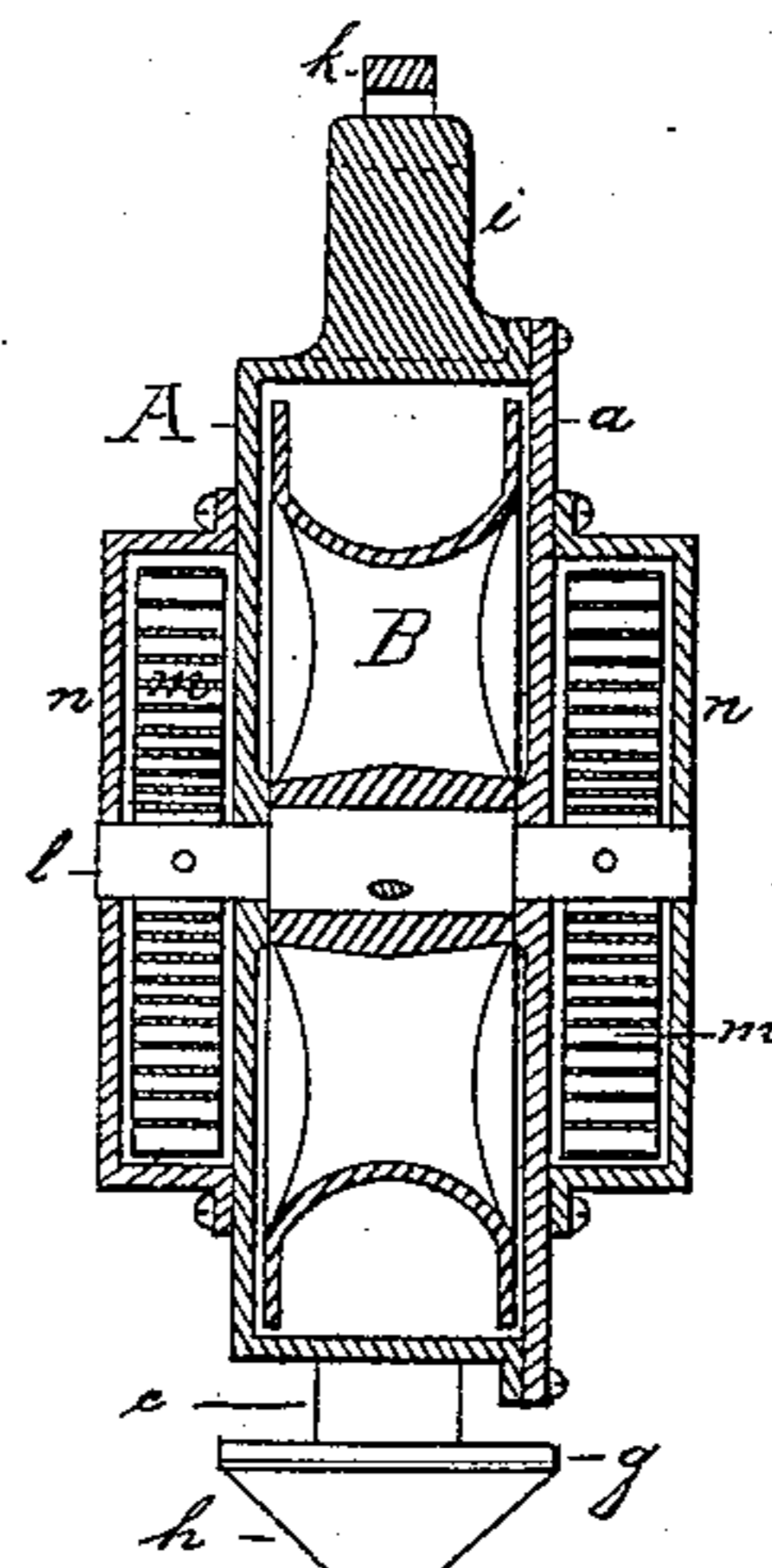


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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BOILER-FLUE CLEANER.

SPECIFICATION forming part of Letters Patent No. 258,426, dated May 23, 1882.

Application filed September 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, OMAR H. JEWELL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Boiler-Flue Cleaners; and I do hereby declare that the following is a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of the invention relates to devices or apparatus for cleaning the flues in boilers. Heretofore this was done by means of a brush or scraper attached to the end of a bar long enough for reaching through the entire length of the flue, and a sufficient open space had to be provided in front of the boilers for handling this bar; or, in places where such space could not be had, the bar had to be made in sections with joints, for either folding or uncoupling the same. With such an arrangement it required a considerable length of time to clean the flues, during which the draft to the fire had to be checked.

Now, it is the object of my invention to produce a device which will require no room in front of the boilers, and by which the flues can be cleaned very rapidly and with ease; and it consists in an apparatus that is connected by a rubber hose with the steam-dome of the boiler, and from which the brush or scraper is propelled through the flue by steam, and is retracted again by spiral springs, all as more fully hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents a longitudinal section of the apparatus in position to clean a flue, and Fig. 2 a transverse section of the same.

Like letters represent corresponding parts in all the figures.

A denotes a casing of circular shape, having a detachable side plate, *a*, that is secured thereon by screws. This case A is provided with two pipe-necks, *b* and *c*, that project in opposite directions from one side of its periphery, and are in line with each other. Upon the upper neck, *b*, is screwed a globe-valve, G, arranged with double conical or balance valves *d*, the stem of which is passed through a stuff-

ing-box, *e*, at one side of the valve-case, while at the opposite side said valve-case is provided with a hose-coupling, *f*. The pipe-neck *c* has an annular flange, *g*, forming a shoulder to a conical rubber ring, *h*, that is placed over the extreme end of the pipe-neck *c*. Said valve-case also has two handles, *i* and *j*, and to the handle *i* is pivoted a small bell-crank, *k*, the short shank of which is in contact with the stem of valves *d* in a manner that by depressing the long shank of said bell-crank the valves *d* will be opened.

Into the casing A is pivoted a sheave, B, that is mounted upon a spindle, *l*, the journals of which extend through the sides of the casing. Spiral springs *m* are inclosed in shells *n*, that are secured by screws against the sides of the casing A. These springs *m* are connected with the end of spindle *l* in a manner to wind upon it. An eyebolt, *o*, is passed through a hole drilled through the center of spindle *l* and through the hub of sheave B. One end of this eyebolt *o* is surrounded by a coil-spring, *p*, which is interposed between the hub of the sheave B and a washer, *q*, secured upon the end of said bolt. The opposite end of the eyebolt *o* has attached the end of a chain, *r*, which is passed through an opening in the rim of sheave B, thence is wound upon said sheave, and with its opposite end this chain is passed through the pipe-neck *c*, and is coupled to the flue-cleaning brush or scraper C. This brush or scraper C has a conical head, *s*, with an eye for connecting the chain, and at its base this head is of somewhat smaller diameter than the flue to be cleaned. The shank of said cleaner or scraper is provided with radially-projecting wires or blades *t*, and its end is provided with a rubber disk, *u*, being about the size of the internal diameter of the boiler-flue.

D is the flue-sheet of a boiler, and E one of the flues.

A hose or flexible tube, F, connects globe-valve G with the steam-dome of the boiler.

For cleaning the flues of a boiler the engineer or fireman holds the apparatus by the two handles *i* and *j*, inserts the brush or scraper C into the flue to be cleaned, and presses the conical rubber ring *h* into and against the flue. Then, by depressing the bell-crank *k* with the thumb, thereby opening the

valve, steam is admitted into the casing, which finds no outlet excepting through pipe-neck *c* and through the flue *E* by propelling the brush or scraper *C*, which, in being pushed through the flue, will unwind the chain *r* from sheave *B*. This chain *r* is to be just of sufficient length to allow the scraper *C* to pass the entire length of the flue, and no farther. The scraper *C* being pushed through the flue with great velocity, the chain *r* would be apt to be torn by the momentum of arresting its motion if it were not made elastic by the spring *p*.

The front rubber disk, *u*, of the scraper forms the piston or plunger to resist the steam, and thereby to cause the scraper to be carried through the flue by the pressure of the steam; but as soon as this rubber disk *u* has passed the end of the flue the steam will lose its force upon it and will escape from between the wires or blades of the scraper. The chain *r*, while being unwound, will turn the sheave *B*, whereby the spiral springs *m* will be wound upon the ends of spindle *l* in a manner that, after the scraper *C* has reached the end of the flue and the engineer or fireman allows the valves *d* to close by releasing the bell-crank *k*, said springs *m* will cause the sheave *B* to turn in a reversed direction, so as to wind up the chain and again retract the scraper to its former position. Thus flue after flue can be cleaned by the force of the steam and the reaction of the springs in quick succession.

As will be noticed, this apparatus is simple in its construction, cannot well get out of order, and is very easy to handle, while it is very effective in its operation of cleaning the flues.

What I claim is—

1. An apparatus constructed substantially as shown, that is flexibly connected with a boiler and detachably connected with the flues of a boiler, in combination with a flue-scraper, and adapted to force the scraper through the flues by the pressure of steam, in the manner set forth.

2. An apparatus substantially as shown that is flexibly connected with a boiler and detachably connected with the flues in the boiler, and arranged to force the scraper through the flue by the pressure of steam, and then to retract it by spring-power, all in the manner substantially as set forth.

3. The casing *A*, having pipe-neck *b*, with valve *G*, and a pipe-neck, *c*, with rubber cone *h*, and inclosing sheave *B* for winding chain *r*, that holds scraper *C*, all constructed and arranged substantially in the manner and for the purpose described and shown.

4. In combination with the casing *A*, having pipe-neck *b*, the valve *G* and pipe-neck *c*, the rubber cone *h*, sheave *B*, bolt *o*, and spring *p*, adapted to wind up the chain *r*, that holds the flue-scraper *C*, all substantially as and for the purpose set forth.

5. The casing *A*, having pipe-neck *b*, with valve *G*, that is provided with hose-coupling *f*, pipe-neck *c*, with rubber cone *h*, handles *i* and *j*, and bell-crank *k*, all substantially as and for the purpose set forth.

6. The casing *A*, having pipe-neck *b*, with valve *G*, pipe-neck *c*, with rubber cone *h*, and shells *n*, holding springs *m*, in combination with sheave *B*, spindle *l*, chain *r*, and flue-scraper *C*, all constructed and arranged substantially in the manner and for the purpose set forth.

7. The combination, with the flue-cleaning apparatus described, of the flue-scraper *C*, composed of cone *s*, wire or blade carrying shank *t*, and rubber disk *u*, all constructed and arranged substantially as and for the purpose specified.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

OMAR H. JEWELL.

Witnesses:

F. W. KASEHAGEN,
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