

P. R. BUCHWALD.
PAINTING MACHINE.
APPLICATION FILED DEC. 29, 1908.

951,386.

Patented Mar. 8, 1910.

2 SHEETS—SHEET 1.

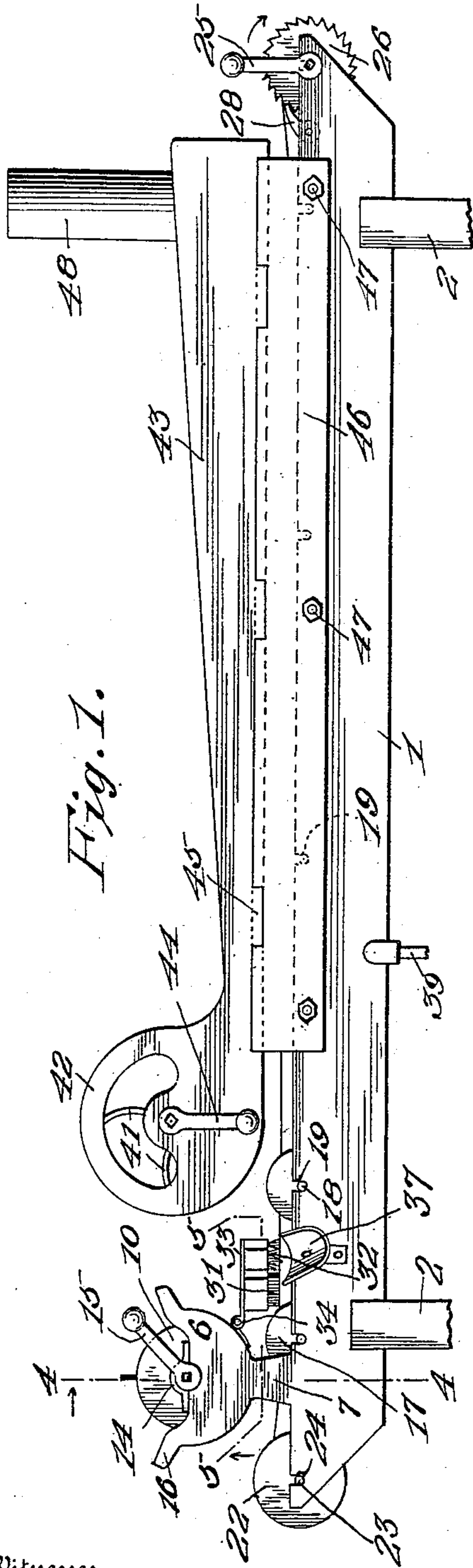


Fig. 1.

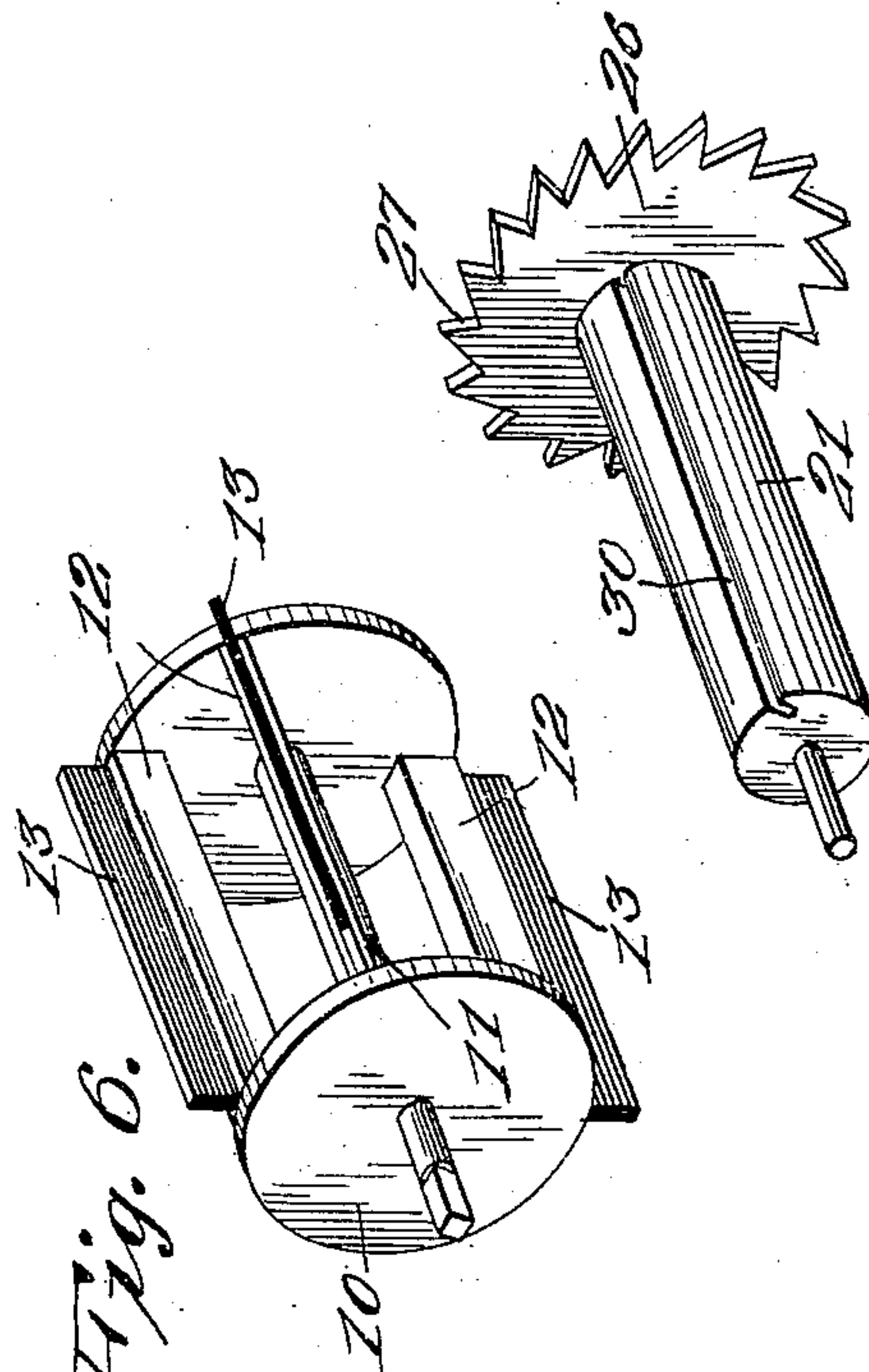


Fig. 6.

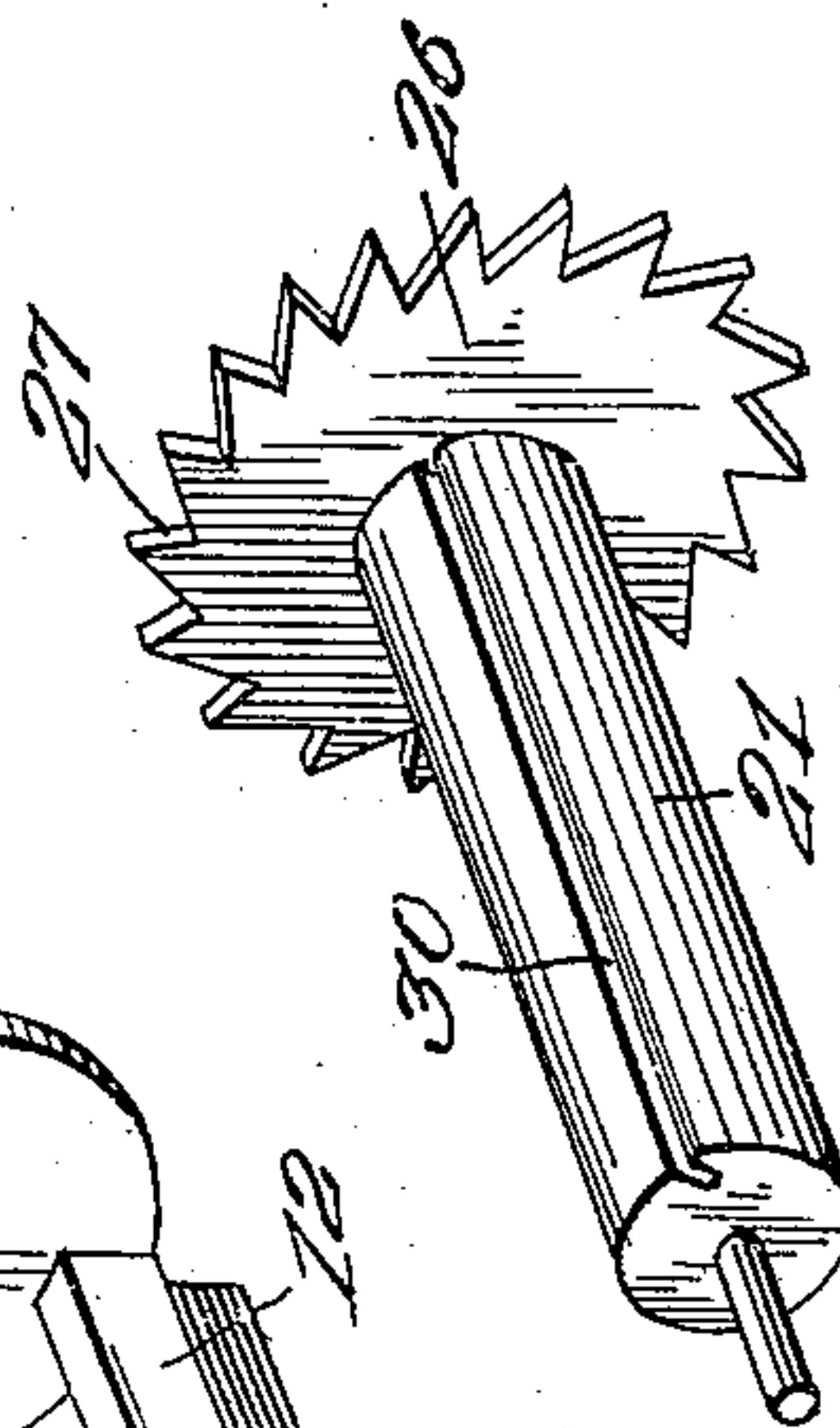


Fig. 7.

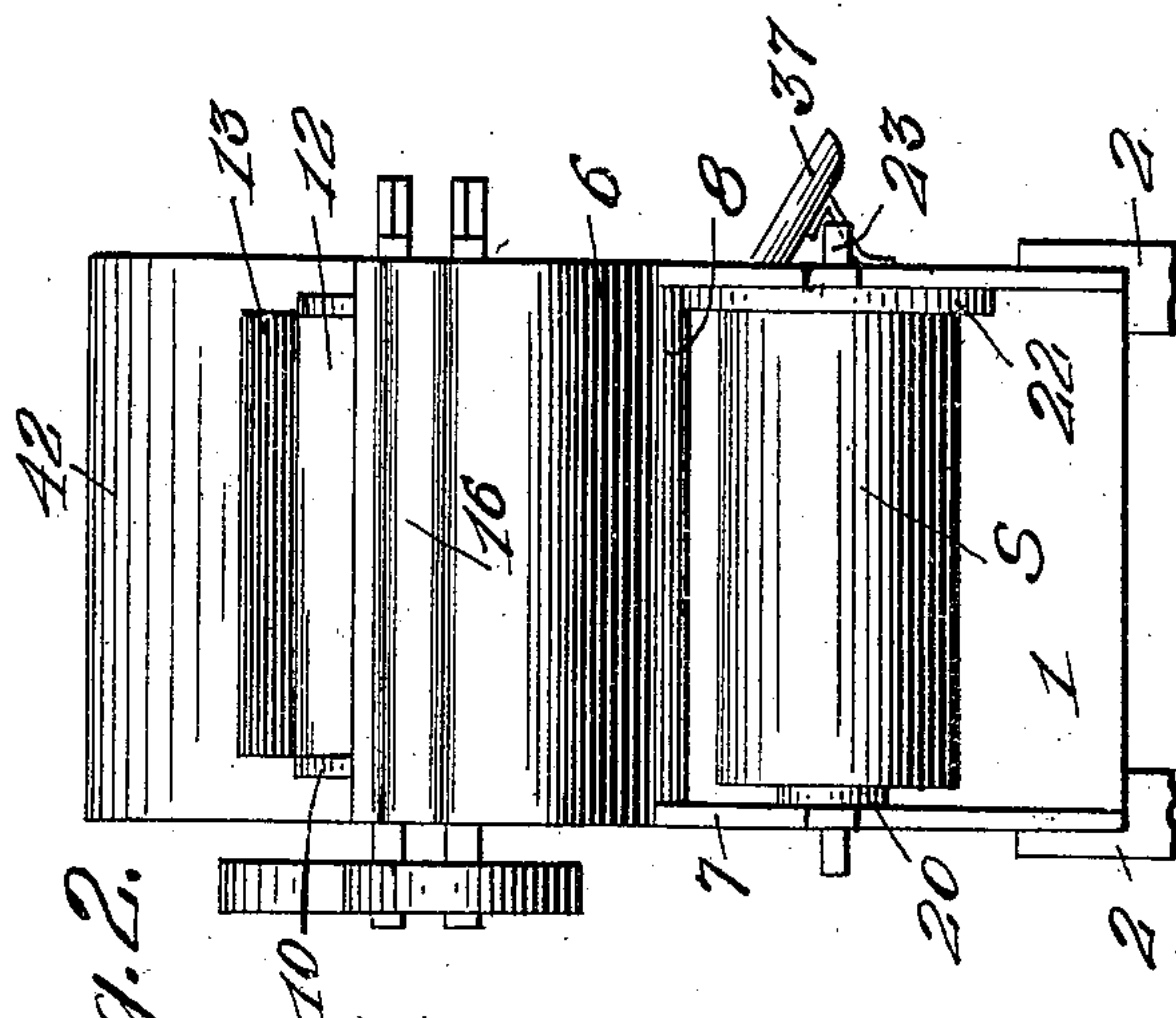


Fig. 2.

Witnesses

James F. Brown
Madelon E. Burns.

Inventor

Paul R. Buchwald

By

Watson E. Coleman

Attorney

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2 SHEETS—SHEET 2.

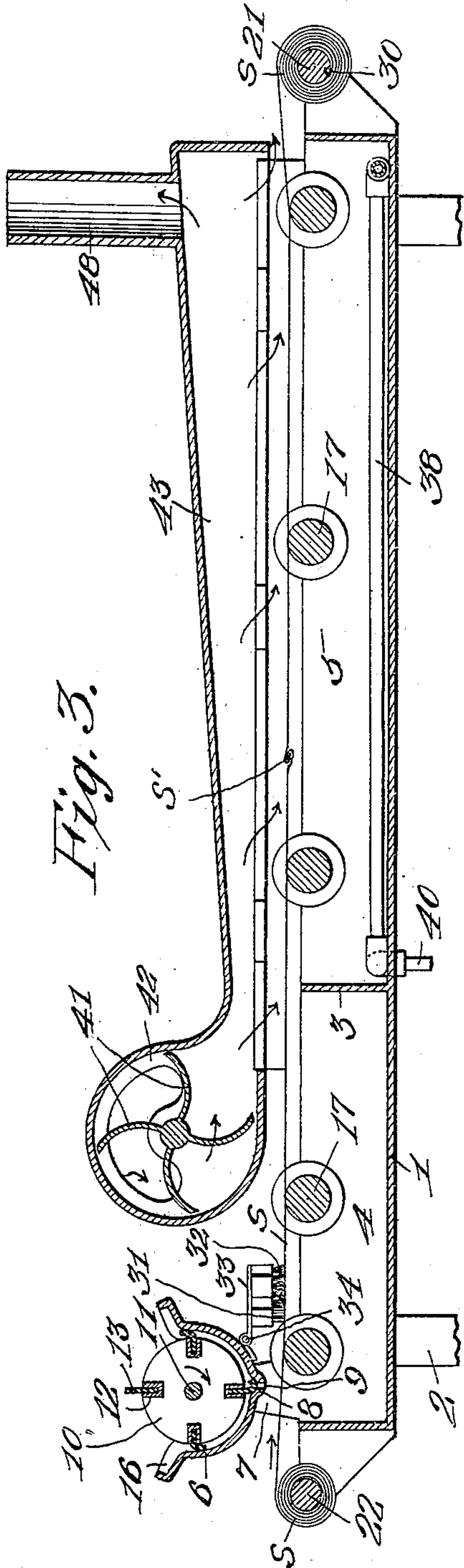


Fig. 3.

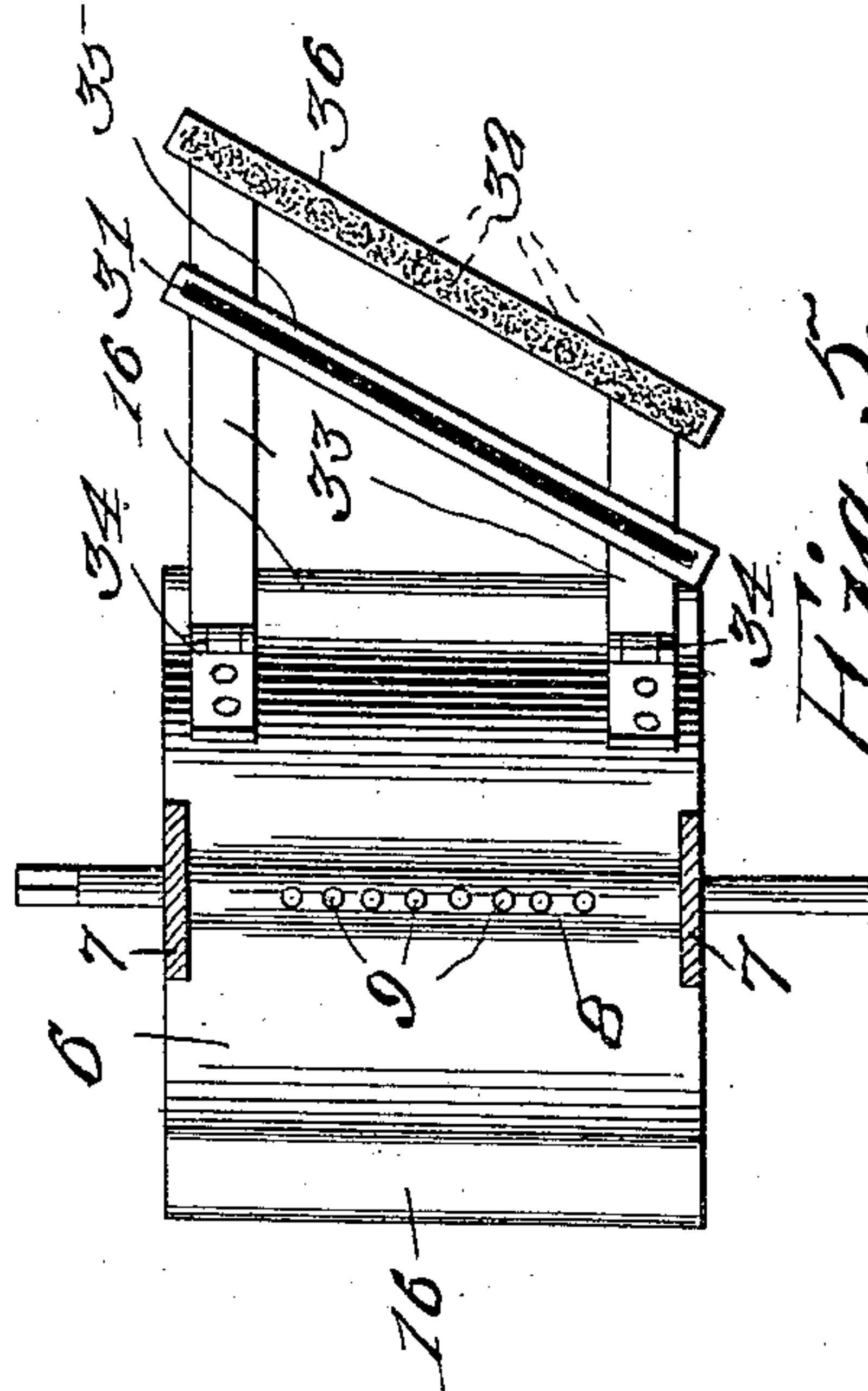


Fig. 5.

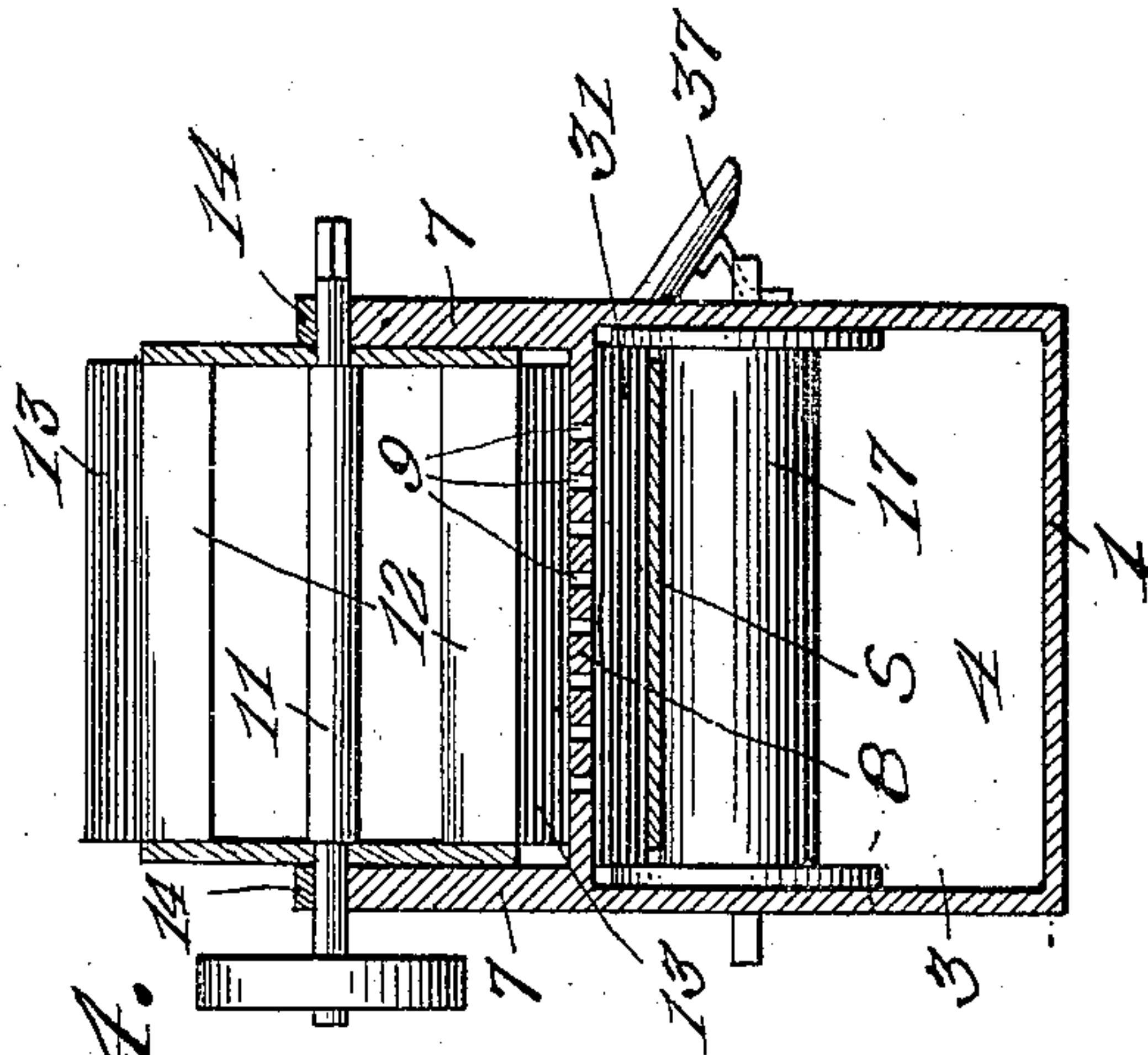


Fig. 4.

Witnesses

James F. Brown
Madelon E. Burns.

Inventor

Paul R. Buchwald

By

Watson E. Coleman

Attorney

UNITED STATES PATENT OFFICE.

PAUL R. BUCHWALD, OF LAURAVILLE, MARYLAND.

PAINTING-MACHINE.

951,386.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed December 29, 1908. Serial No. 469,849.

To all whom it may concern:

Be it known that I, PAUL R. BUCHWALD, a citizen of the United States, residing at Lauraville, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Painting-Machines, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in machines for painting or coating strips of tin or other sheet material.

The object of the invention is to provide a simple and practical machine of this character which will be comparatively inexpensive in construction and which will effect a great saving in time and labor in painting tin or performing analogous operations.

Further objects of the invention are to provide improved means for discharging or feeding the paint from its reservoir, improved means for heating the painted sheet and directing air blasts against the same to quickly dry it, and improved means whereby rolls of sheet tin as they are sold on the market at the present time may be successively fed through the machine and thereby painted in an expeditious and economical manner.

With the above and other objects in view, the invention consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved machine constructed in accordance with the invention; Fig. 2 is an end elevation; Fig. 3 is a vertical longitudinal section; Fig. 4 is a detail cross section taken on the plane indicated by the line 4—4 in Fig. 1; Fig. 5 is a detail horizontal section taken on the plane indicated by the line 5—5 in Fig. 1; Fig. 6 is a detail perspective of the rotary agitating and feeding wheel in the paint reservoir; and Fig. 7 is a detail perspective of the winding drum.

The invention comprises a suitable hollow body or casing 1 horizontally disposed and mounted on supporting legs 2 or otherwise suitably supported. At one end of this body which forms a drying chamber or oven is mounted suitable means for feeding or discharging paint or any other coating liquid upon a moving sheet of tin or the like, means being provided throughout the length of

the body for guiding such sheet over or through it and means being provided within or above the body for heating the coated sheet and directing air blasts against the same to quickly dry the paint or other coating.

As illustrated, the body 1 is in the form of a rectangular trough, the interior of which is divided by a transverse partition 3 into a drip chamber or compartment 4 and a drying chamber or compartment 5. Over the outer end of the chamber 4 is arranged a reservoir or receptacle 6 for the paint or other coating solution. As illustrated, this paint reservoir or pot 6 is of semi-cylindrical-shape and is disposed transversely across the body, its ends being supported by standards 7 rising from the side walls of the body 1. Formed centrally in the bottom of the paint pot 6 is a longitudinally extending channel 8 in which is formed a longitudinal series of discharge apertures 9 from which latter the paint drops upon a moving strip S of tin or the like. For the purpose of agitating the paint in the pot 6 and forcing or feeding it out of the apertures 9, a rotary agitator and feeder is arranged within the same, said agitator and feeder consisting of two circular heads 10 secured on a horizontal shaft 11 and connected by longitudinally extending channel bars 12 in the channel portions of which are secured flexible strips 13 of rubber or the like. The shaft 11 is journaled in bearings 14 on the end walls of the pot or reservoir 6 and upon one end of said shaft may be arranged a crank handle 15 for manually rotating the agitator and feeder. Any equivalent device may be substituted for the crank 15 so that the agitator may be operated either manually or by power. The flexible strips 13 project beyond the outer edges of the channel bars 12 and are of such length that as the agitator and feeder is rotated they will be bent when they contact with the walls of the pot 6 and, owing to their flexibility and elasticity, they will spring into the channel or groove 8 and force the paint therein out of the apertures or openings 9, as will be readily understood upon reference to Fig. 3 of the drawings. When the agitator is stopped so that one of the strips 13 is disposed in the channel or groove 8, such strip will close the apertures 9 and stop the discharge of paint. The agitator or mixer may be rotated in either direction and, in order to prevent wasting and

splashing of paint and also for the purpose of guiding the strips 13 into the pot or reservoir, the upper edges of the side walls of the latter are flared outwardly and flanged, as indicated at 16.

The moving sheet or strip S of tin is supported and guided by flanged rollers 17 arranged transversely and horizontally in the body 1 at intervals throughout its length, the trunnions 18 of said rollers being preferably removably arranged in bearing notches or recesses 19 formed in the upper edges of the side walls of the body, as indicated in dotted lines in Fig. 1. Sheet tin for roofing purposes is put on the market in rolls and to adapt the machine for effectively handling such rolls, rollers or drums 20, 21 are arranged at opposite ends of the body. The roller or drum 20, as more clearly shown in Fig. 2, has a cylindrical body portion of such size as to readily enter a roll of tin, one end of such roller being preferably provided with an annular flange 22. The trunnions 23 of the roller 20 are removably journaled in bearing notches 24 formed in the extended ends of the side walls of the body 1, which extended ends form brackets. By constructing the roller 20 and removably mounting it as just stated, it may be readily taken from its bearings and slipped into a roll of tin, and then replaced. The tin is unwound from the roller 20 and wound upon the roller or drum 21, which latter is somewhat similar in construction. The roller 21, however, is provided at one of its ends with a crank 25 or any equivalent device by means of which said roller may be rotated manually or by power; and the flange 26 at one end of said roller has its periphery cut to form an annular series of ratchet teeth 27 adapted to be engaged by a gravity actuated pawl 28 pivoted at 29 on one of the side walls of the body 1. This pawl and ratchet prevents retrograde movement of the roller 21. The roller 21 has its cylindrical body portion provided with an angularly arranged channel or groove 30 in which may be hooked the bent end of the tin sheet S.

Any suitable means may be provided in lieu of the groove 30 for connecting the sheet to the roller, but I preferably employ the groove because the tin sheets as put on the market have their ends bent so that they may be readily engaged with said groove 30. Such bent ends of the tin sheets or strips enable them to be readily connected together, as indicated at S' in Fig. 3, so that the operation of the machine may be made continuous and the necessity of independently starting each new strip or roll of tin through the machine, will be obviated.

In order to properly spread or coat the paint or the like over the sheet S, a spreader or wiper strip 31 and a brush 32 are provided. These parts are carried by a vertical

swinging frame consisting of longitudinal bars 33 which unite said parts and which have their ends hinged, as shown at 34, to the paint pot or reservoir 6. The wiper or spreader 31 is in the form of a strip of flexible material, such as rubber, arranged in a channeled cross bar 35 which is secured to the bars 33 and arranged diagonally across the sheet S, as illustrated. The brush 32 is of ordinary form consisting of bristles projecting from a diagonally arranged cross bar or head 36 united to the bars 33 and arranged parallel with but adjacent to the channeled bar 35 of the wiper. The wiper or spreader and brush are arranged diagonally so that the surplus paint will be directed to one side of the machine and onto a downwardly and outwardly inclined chute 37 suitably secured to one side of the body and beneath which a collecting receptacle of any description may be placed.

For the purpose of quickly drying the paint or other coating deposited on the moving sheet S, a steam heating coil 38 is preferably provided and arranged in the bottom of the drying chamber 5. This coil has inlet and outlet connections 39, 40 extending through opposite sides of the body 1, and its intermediate portion within said body may be of any form and construction.

For the purpose of quickly drying the paint or coating, means is also provided for directing a blast of air against the painted face of the strip or sheet S. This air blast means preferably comprises a rotary fan or blower 41 arranged in a casing 42 provided at one end of a hood or cover 43, which latter is arranged over the drying chamber 5 of the body of the machine. The shaft of the fan 41 may be driven either manually or by power but, as illustrated, a crank handle 44 is arranged upon one of its ends. The hood 43 may be mounted or supported in any suitable manner, but the same is preferably effected by hinging to its side walls, as shown at 45, two supporting plates 46, the lower portions of which are adapted to be bolted, as shown at 47, to the side walls of the body 5. The supporting strips or plates 46 are so arranged that they hold the hood 43 spaced above the upper edge of the body 1 and by providing the bolts 47 or equivalent removable fastenings, the hood may be thrown back when the fastenings on one of the supporting strips or plates 46 are removed, in order that ready access may be had to the interior of the machine to start a strip or sheet of tin therethrough. The hood 43 is preferably of greater height or depth at its discharge end than at its inlet end, as seen in Fig. 3, and at its discharge end is arranged an outlet pipe or stack 48 which may lead to any point of discharge.

From the foregoing description it will be seen that the invention provides an exceed-

ingly simple and practical machine by means of which strips or sheets of tin or the like may be quickly and effectively painted or coated with any liquid in a manner that will effect a great saving in both time and labor. The paint feeding and spreading means at one end of the machine causes the entire surface of the sheet or strip to be evenly coated and effectively removes all surplus paint; and the provision of the heating and drying means throughout the remaining portion of the body of the machine causes the paint or coating to be thoroughly dried before the sheet is wound upon the roller or drum 21.

Having thus described the invention what is claimed is:

1. In a machine of the character described, the combination of a hollow body, means for supporting and guiding a sheet therethrough, a reservoir for a paint or other coating arranged transversely over the body adjacent to one end and formed in its bottom with a series of discharge apertures, means within the reservoir for agitating its contents and forcing it out of said apertures, and means for spreading the paint or coating over said sheet.

2. In a machine of the character described, the combination of a hollow body, means for supporting and guiding a sheet therethrough, a reservoir for a paint or other coating arranged transversely over the body adjacent

to one end and formed in its bottom with a series of discharge apertures, means within the reservoir for agitating its contents and forcing it out of said apertures, a swinging frame, a diagonally arranged flexible wiping strip upon said frame, a diagonally arranged brush upon said frame, and means for drying the coating on the sheet as it passes through the body.

3. In a machine of the character described, the combination of a reservoir for paint or other coating and formed in its bottom with a channel having discharge apertures, and a flexible strip movably mounted in the reservoir and adapted to enter the channel and force the contents of the reservoir from said discharge apertures.

4. In a machine of the character described, the combination of a reservoir for paint or other coating and formed in its bottom with a channel having discharge apertures, a rotary agitator in said reservoir and flexible strips carried by said agitator and adapted to spring down into said channel to force the contents of the reservoir from said discharge apertures.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

PAUL R. BUCHWALD.

Witnesses:

WM. H. VANSANT,
JOHN YELLOTT.